## P 405

### COMPARISON BETWEEN CHORIORETINAL EFFECTS OF THE CONTINUOUS VERSUS PULSED-WAVE BY DIODE-LASER IN PIGMENTED RABBITS

*ANDRES M.V., RAMÍREZ J.M., TRIVIÑO A., SALAZAR J.J., RAMÍREZ A.I.*
Instituto de Investigaciones Oftalmológicas Ramón Castroviejo. Facultad de Medicina, Universidad Complutense. Madrid. (Spain)

**Purpose:** To compare the histhologic changes in the retina and choroid between the continuous and pulsed-wave photocoagulation by diode laser in pigmented rabbits. The rèpetitive-pulse photocoagulation could prove to be a promising technique for several pathologies in the ocular fundus.

**Methods:** Continuous and pulsed diode-laser transpupillary photocoagulation was performed in the eyes of pigmented rabbits using a semiconductor laser emitting infrared radiation (810nm.). The power used was 150mw. and the spot size was 200$\mu$. The exposure time was 200msec. for the continuous wave and in the form of 20 pulses spaced by 5msec. interval the pulsed-mode. The animals were sacified two and seven days after the treatment to hithologic study.

**Results:** In the areas treated with pulsed-wave, the most intensive alterations appeared in the outer retina three days after the treatment, while all the retinal layers were affected in case of using continuous wave. The retinal repair was observed seven days post-photocoagulation in the form of scar tisuue containing hyperpigmented cells.

**Conclusions:** The histhologic effects of the continuous and pulsed-wave are similar; however in the continuous wave, all the retina is affected while in the pulsed the neural retina is more preserved.

## P 406

### CHORIORETINAL EFFECTS OF THE CONTINUOUS-WAVE PHOTOCOAGULATION BY DIODE-LASER IN PIGMENTED RABBITS.

*ANDRES M.V., TRIVIÑO A., RAMÍREZ J.M., RAMÍREZ A.I., SALAZAR J.J.*
Instituto de Investigaciones Oftalmológicas Ramón Castroviejo. Facultad de Medicina, Universidad Complutense. Madrid. (Spain)

**Purpose:** To describe the histopathologic effects of a diode laser system emitting in continuous-wave in an animal model to specific potential uses of this apparatus in the treatment of pathologies in the chorioretinal structures.

**Methods:** Diode-laser transpupillary photocoagulation was performed in the eyes of pigmented rabbits using a semiconductor laser emitting infrared radiation (810nm.) in continuous wave. The parameters were: spot size 200$\mu$, exposure time 200msec. and power 150mw. The animal were sacrified at two and seven days after the treatment. The eyes were enucleated to histhologic study.

**Results:** Histologic examination by light microscopy revealed the main changes in the sensory retina, RPE and choroid. Seven days postphotocoagulation, we observed the existence of a scar tisuue with phagocityc cells and glia.

**Conclusions:** The deeper deposition of diode laser light produce more effect in the outer retina and the choroid. The inner retina was more preserved.

## P 407

### COMPARISON BETWEEN CHORIORETINAL EFFECTS OF THE CONTINUOUS VERSUS PULSED-WAVE BY DIODE-LASER IN PIGMENTED RABBITS

*ANDRES M.V., RAMÍREZ J.M., TRIVIÑO A., SALAZAR J.J., RAMÍREZ A.I.*
Instituto de Investigaciones Oftalmológicas Ramón Castroviejo. Facultad de Medicina, Universidad Complutense. Madrid. (Spain)

**Purpose:** To compare the histhologic changes in the retina and choroid between the continuous and pulsed-wave photocoagulation by diode laser in pigmented rabbits. The rèpetitive-pulse photocoagulation could prove to be a promising technique for several pathologies in the ocular fundus.

**Methods:** Continuous and pulsed diode-laser transpupillary photocoagulation was performed in the eyes of pigmented rabbits using a semiconductor laser emitting infrared radiation (810nm.). The power used was 150mw. and the spot size was 200$\mu$. The exposure time was 200msec. for the continuous wave and in the form of 20 pulses spaced by 5msec. interval the pulsed-mode. The animals were sacified two and seven days after the treatment to hithologic study.

**Results:** In the areas treated with pulsed-wave, the most intensive alterations appeared in the outer retina three days after the treatment, while all the retinal layers were affected in case of using continuous wave. The retinal repair was observed seven days post-photocoagulation in the form of scar tisuue containing hyperpigmented cells.

**Conclusions:** The histhologic effects of the continuous and pulsed-wave are similar; however in the continuous wave, all the retina is affected while in the pulsed the neural retina is more preserved.

## P 408

### GROWTH FACTOR PROFILES IN PIG EYES FOLLOWING SCATTER LASER PHOTOCOAGULATION

BOULTON M.,[1] XIAO M.,[1] KHALIQ A.,[1] MORIARTY P.,[1] CRANLEY J.,[2] FOREMAN D.[1] and McLEOD, D.[1]
[1]Department of Ophthalmology, Manchester Royal Eye Hospital, Manchester (UK)
[2]School of Biological Sciences, University of Manchester (UK)

***Purpose.*** To characterise changes in retinal and vitreal growth factor profiles in the pig at varying times following scatter retinal photocoagulation.

***Methods.*** Approximately two thousand 500 µm blue-green laser burns at 300mW and 100 msec duration were applied to the retina of miniature pigs. At varying times (0, 4, 7, 21 and 42 days) post laser animals were sacrificed and a) the vitreous removed for growth factor analysis, and b) the retina fixed for immunohistochemical staining for growth factors.

***Results.*** Analysis of vitreal samples revealed a five to sevenfold increase in IGF-I and IGFBP levels at 7 days post laser compared to controls. By contrast, TGF-β2 levels were reduced by 50% at 4 days post photocoagulation compared to controls. No significant changes were observed for either vitreal bFGF, EGF or insulin. Immunostaining for IGF-I, TGF-β, bFGF, and EGF was observed in the non-lasered retina (particularly in the RPE) from control eyes. Variation in immunostaining in lasered eyes was only observed in the RPE and outer nuclear layer (ONL) within the burn area. IGF-I and EGF staining intensity in the RPE decreased by 4 days but had returned to normal by 21 days post laser while bFGF and TGF-β staining in the RPE remained constant. Staining intensity in the ONL of the burn area was significantly increased by 4 days post laser for IGF-I, and TGF-β and by 7 days post laser for EGF and bFGF. By 42 days immunoreactivity for all growth factors returned to levels in control retina.

***Conclusions.*** There is a considerable change in growth factor expression within both the retina and vitreous following retinal photocoagulation. Such changes may be relevant to the regression of preretinal new vessels after laser.